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Signed

Dated 19 September 2005

# Patents Form 1/77

Patents Act 1977  
(Rule 16)

02APR03 E796962-87002847  
P01/7700 0.00-0307557.9

1/77

## Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



The Patent Office

Cardiff Road  
Newport  
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NP10 8QQ

1. Your reference

HL82549/SJM

2. Patent application number

(The Patent Office will fill in this part)

0307557.9

1 APR 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Draeger Safety UK Ltd.  
Ullswater Close  
Kitty Brewster Industrial Estate  
Blyth  
Northumberland NE24 4RG

Patents ADP number (if you know it)

86 02229001

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

HOSE DISPENSER

5. Name of your agent (if you have one)

Haseltine Lake

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Imperial House  
15-19 Kingsway  
London  
WC2B 6UD

Patents ADP number (if you know it)

34001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

## Patents Form 1/77

5. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description 6

Claim(s)

Abstract

Drawing(s) 3 + 3

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents  
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature

Harellive Lake

Date

31st March 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

S J Mohun

[0113] 233 9400

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- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.*
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.*
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## HOSE DISPENSER

The present invention relates to a hose dispenser, for  
5 dispensing hose. Such hose may be used, for example,  
for conveying fluid for breathing from a remote source  
to an operative, such as an inspection or cleaning  
operative working in an incident area or confined  
space.

10

Known hose dispensers typically include a reel, around  
which the hose is wound. The reel is often mounted on  
a trolley, to aid transportation of the dispenser. In  
use, one end of the hose wound around the drum is  
15 connected to a source of gas for breathing, and the  
other end is carried into an incident by an operative,  
connected to a harness worn by the operative. The  
operative would typically uncoil the desired amount of  
hose before entering an incident area. As the hose is  
20 transported away from the dispenser, the reel rotates  
allowing the hose to unwind from the reel as required  
by the operative moving away from the reel. Such a  
reel fitted with a hose has considerable inertia, so  
that when the operative stops pulling the hose, or  
25 slows down, the reel continues to turn, and the hose  
continues to uncoil. This can cause lengths of hose to  
fall onto the ground. Such a situation is potentially  
hazardous, particularly in the proximity of a  
firefighting incident. Furthermore, the freely  
30 uncoiling loose hose can jam the dispenser if the slack  
hose is not taken up. This may then cause problems if  
the operative wishes to draw more hose from the reel,  
and may in extreme cases cause the hose to become  
nipped, thus blocking the air supply conveyed through  
35 the hose, upon which the operative is dependent.

According to an aspect of the present invention there is provided a hose dispenser, for use with a hose for conveying fluid, the dispenser comprising:

5 a substantially cylindrical reel, for holding a length of hose, rotatably mounted on a support;  
braking means for inhibiting rotation of the reel;  
and

10 an arm, movable between first and second positions, being arranged to bear against a portion of hose in use, wherein the arm is operatively associated with the braking means such that when the arm is in the first position the braking means inhibits rotational motion of the reel, and when the arm is in the second position the braking means does not inhibit rotational  
15 motion of the reel, and the reel is able to rotate to dispense hose.

Preferably the support comprises a frame.

20 Preferably the arm is arranged in use to be moveable between the first and second positions in dependence upon tension in a hose bearing against the arm.

In a preferred arrangement the arm is pivotally  
25 mounted, at at least one end thereof, on the reel. Pivotal movement of the arm between the first and second positions may be arranged to cause engagement and disengagement of the braking means.

30 The arm may comprise a guide portion arranged in use to guide a hose for dispensing from the reel. The guide portion may comprise a channel or tube through which a hose is arranged in use to pass.

The braking means may comprise a brake member, such as a brake pad, and a drum against which the brake member is arranged to bear when the braking means is engaged.

- 5 The guide portion may be arranged in use to co-operate with an end portion of the hose when the hose is substantially fully coiled on the reel. The end portion of the hose may lockably engage the guide portion. The end portion of the hose may comprise a  
10 substantially frusto-conical hood, which may also serve to protect the exposed end of the hose.

The hose dispenser may be mounted on a trolley.

- 15 According to another aspect of the present invention there is provided a hose dispensing apparatus, comprising a reel, holding a length of hose for conveying fluid, the hose having a free end; and  
braking means for inhibiting rotational motion of  
20 the reel, wherein the braking means engages to inhibit rotational motion of the reel except when a tension force is applied to the free end of the hose.

- In a preferred arrangement, application of a tension  
25 force to the free end of the hose causes an arm, mounted on the reel and operatively associated with the braking means, to move into a first position, in which the brake is disengaged. In the absence of such application the hose causes the arm to move into a  
30 second position in which the brake is engaged.

Preferred embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

- 35 Fig. 1 is a perspective view of a first embodiment of hose dispenser;

Fig. 2 is a plan view of the dispenser of Fig. 1;

Fig. 3 is a schematic view of a braking system of the dispenser of Figs. 1 and 2 in its disengaged position;

5 Fig. 4 shows schematically the braking system of Fig. 3 in its engaged position;

Fig. 5 shows another embodiment of dispenser in which a reel is mounted on a trolley;

10 Fig. 6 shows another embodiment of dispenser in which two reels are mounted on a trolley.

Turning to Fig. 1, this shows generally at 10 a rotatable reel 10, holding a coiled hose 12 suitable for conveying breathable gas, mounted on a tubular  
15 steel frame 14. The reel has a pivoting arm 16, which has a portion defining an aperture, or "eye" 18 fitted thereon. The hose is threaded through the eye 16 so that the free end of the hose protrudes through the eye. The free end of the hose is fitted with a  
20 resilient frusto-conical protective hood 20. The hood provides two functions. First, it enables the free end of the hose to engage the eye of the arm 16, and secondly, it protects a valve 22, located on the free end of the hose, from damage. Another valve 24 is  
25 provided in the centre of the reel, which is connected to the other end of the hose. In use, the free end of the hose is carried by an operative or similar operative, or is attached to breathing apparatus worn by the operative, and the other end is connected to a  
30 source containing gas for breathing.

Fig. 2 is a plan view of the reel of Fig. 1. The arm 16 is mounted pivotally on the reel. Due to the fact that the hose is threaded through the aperture portion  
35 mounted on the arm, when the hose is put under tension, i.e. when the end of the hose is pulled so as to uncoil

the hose, the arm lifts. If the hose becomes slack, i.e. when it is not being pulled, the arm falls under gravity.

5 The pivoting arm 16 is operatively connected to braking means, as can be seen from schematic Figs. 3 and 4. The braking means provides a brake for the reel 10 holding the hose and comprises a brake drum 26, a fixed, i.e. non-rotatable, reel-carrier 28, and a brake shoe 30. The arm 16 is connected to the brake shoe 30 and is pivotally mounted on the fixed reel-carrier 28 at a pivot point 32. When the arm is lifted, by putting the hose under tension, the brake shoe clears, and therefore does not engage the brake drum 26, and 15 the reel 10 holding the hose can rotate freely to dispense hose. However, when the hose is no longer under tension, the arm 16 falls, as described above. This case is shown schematically in Fig. 4. Due to the pivotal mounting of the arm 16, when the arm drops, the 20 brake shoe 30 or a brake pad retained therein (not shown) makes contact with the inside surface of the brake drum 26. When the brake is engaged rotational motion of the reel is inhibited, thus preventing undesirably large amounts of hose from being dispensed 25 from the reel 10 when the hose is slack.

Figs. 5 and 6 show hose dispensers 10 of the kind described as above mounted on trolleys 34 in different configurations and connected to cylinders 36 of 30 different sizes containing fluid for breathing. The trolley of Fig. 5 might for example be used by a single operative on the hose, whereas the trolley shown in Fig. 6, having two reels and two hoses could support two operatives. Typically the trolley would remain in 35 a safe location or base-station, and the operative would attach the hose 12 to a harness, connected by a



- further hose to a face mask. A system such as this obviates the need for an operative to carry a heavy and cumbersome cylinder on his back. The operative is able to enter an incident or confined space, breathing the fluid conveyed through the hose 12 from the cylinder(s) 36. As the operative moves away from the trolley the hose 12 is progressively dispensed from the reel 10, since the hose is under tension and the brake thus disengaged. When sufficient hose is dispensed or the operative stops moving, the hose slackens and the brake (see discussion of Fig. 4 above) is applied. This stops the motion of the reel 10 and therefore prevents further hose 12 from being uncoiled from the reel 10.
- 15 When the hose is fully re-coiled onto the reel for example by turning a winding handle (not shown), the hood 20 eventually engages the eye 18 to hold the arm 16 in the lowered position and thereby effectively to lock the reel.

1/3

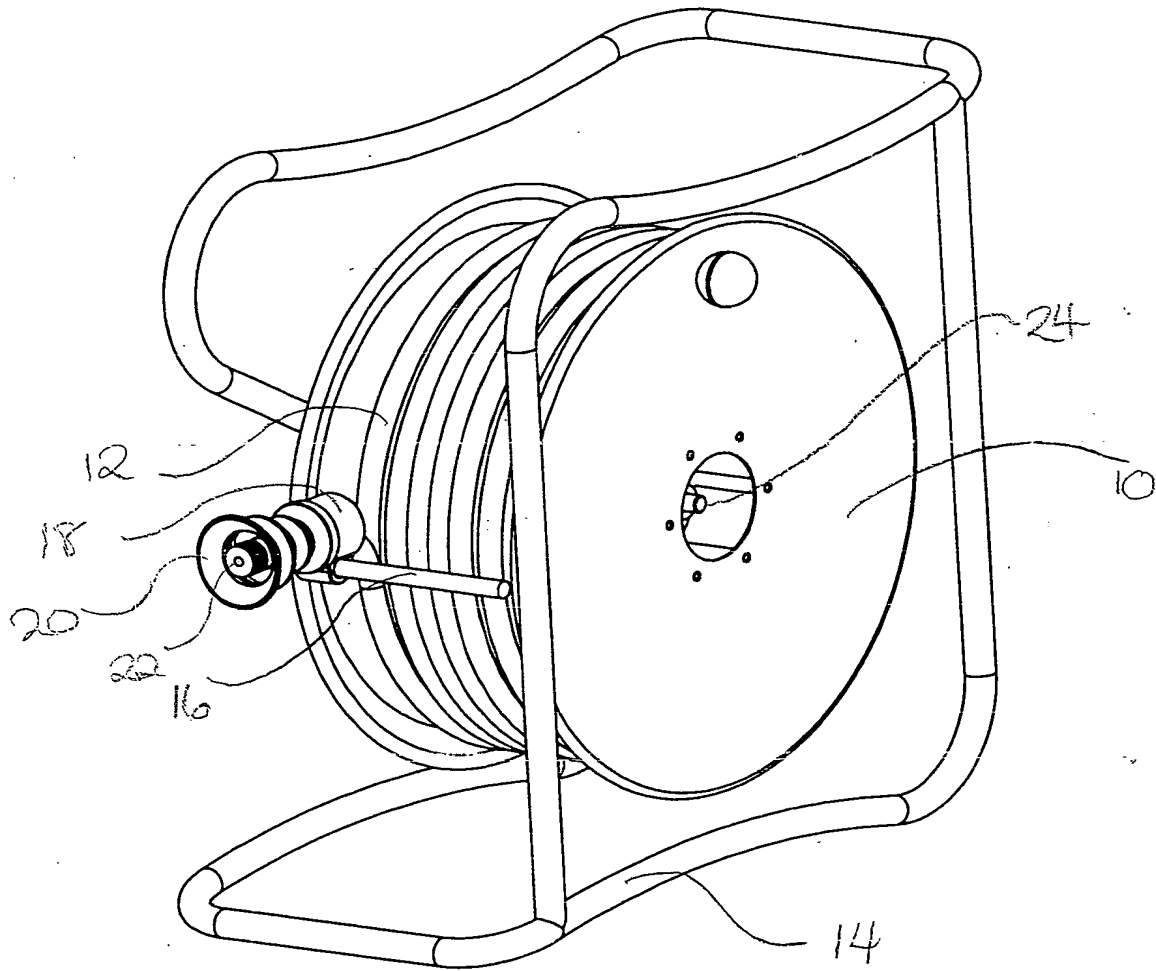


Fig 1

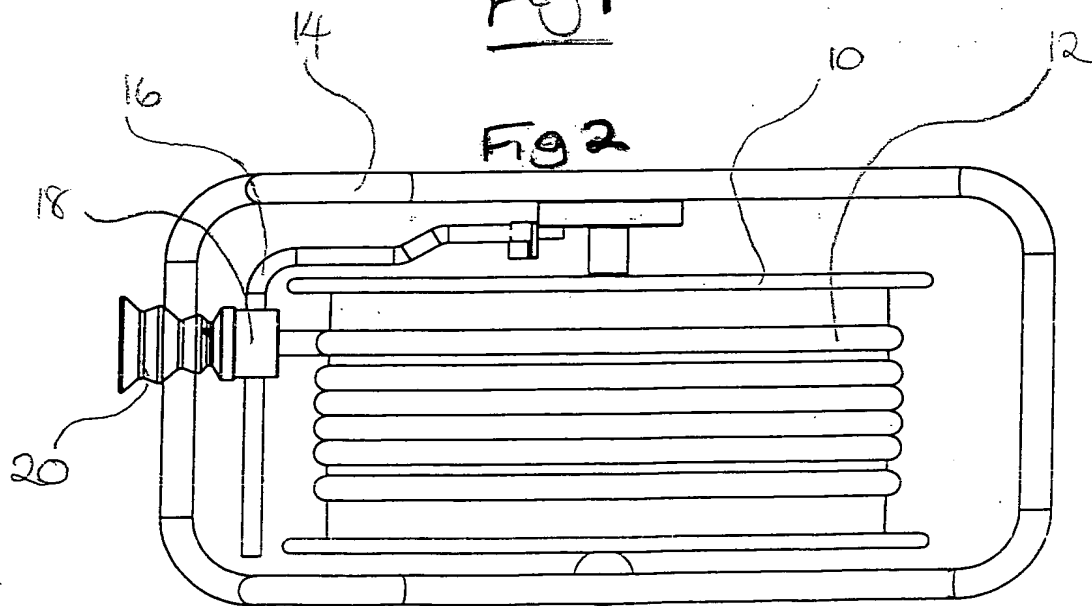


Fig 2

2/3

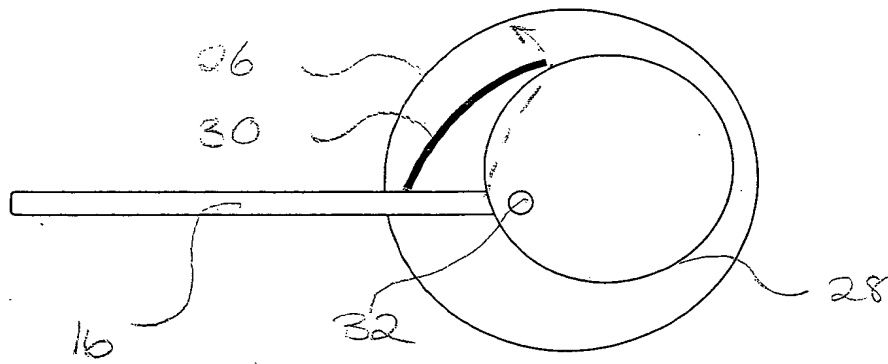


Fig 3

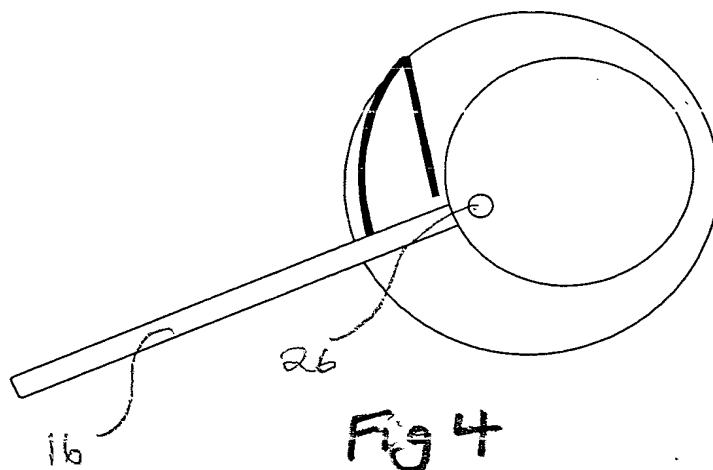


Fig 4

3/3

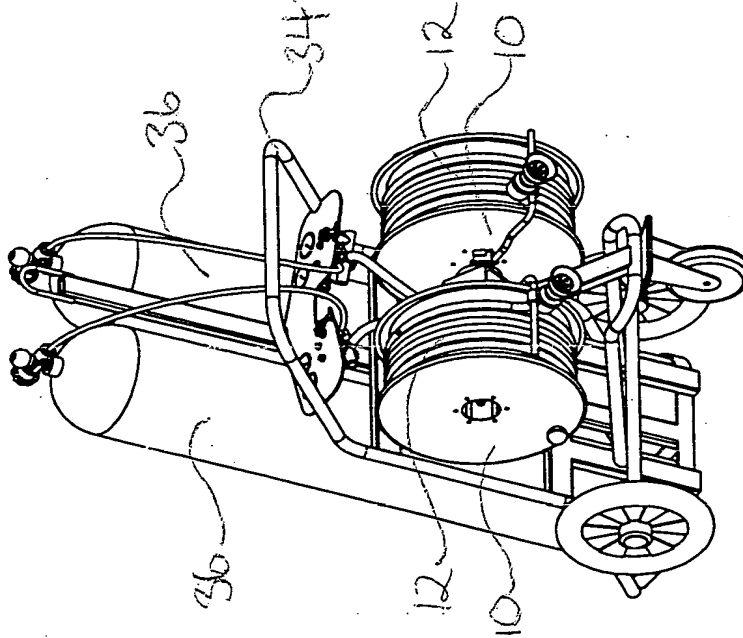


Fig. 6

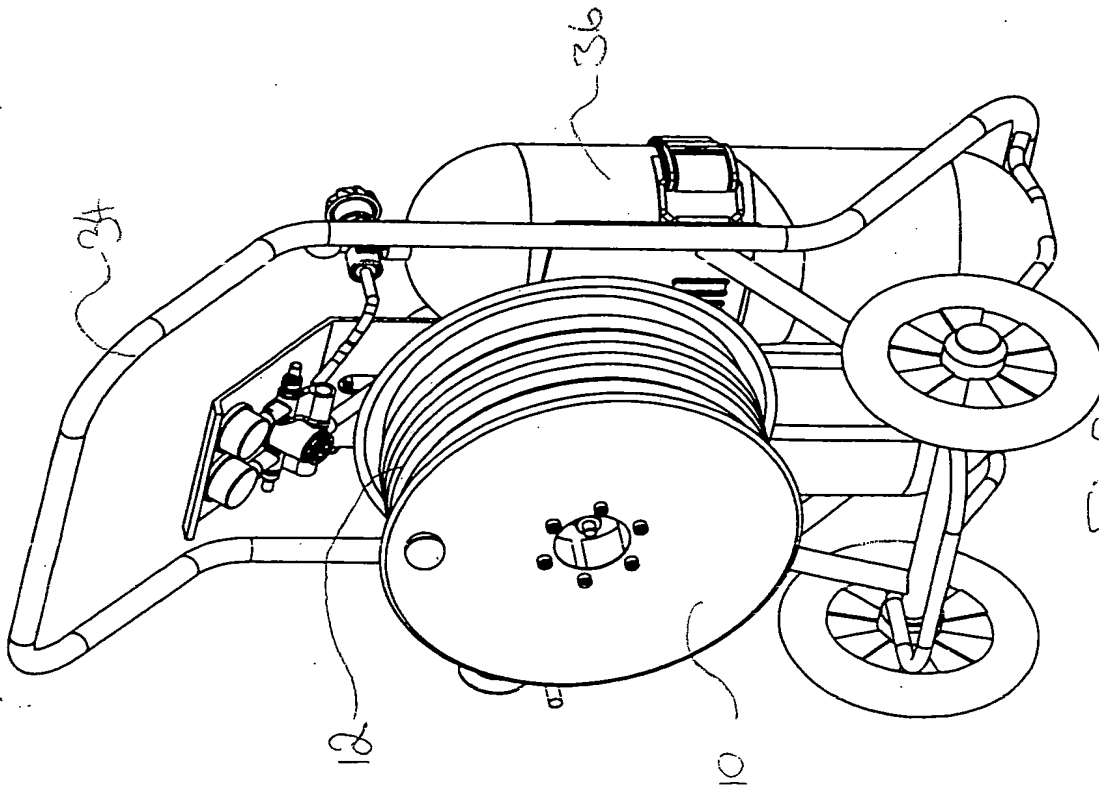


Fig. 5